



Magnetostratigraphy and rock magnetism of Quaternary loess-paleosol sequences from Ukraine

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Previous paleomagnetic studies of Quaternary loess-soil deposits in Ukraine point out contradicting results in the stratigraphic position of the Matuyama-Brunhes boundary. New data were obtained from Quaternary key sections of Ukraine: Boyanychi and Korshiv (Volhynian Upland), Roxolany (Black Sea Lowland) and Vyazivok (Dnieper Lowland). The magnetic parameters of 8240 specimens which represent all Pleistocene and Holocene stratigraphic loess-soil horizons were measured using modern highly precise equipment in geomagnetic laboratories of Norway, Poland, Russia and Ukraine.

Earlier Roxolany section had been studied by different research groups and the position and ages of individual stratigraphic horizons caused much discussion. According to new results the Matuyama-Brunhes boundary is located at a depth of 46.6 m at the contact of the Lubny and Martonosha paleosol horizons (PK9). It is not consistent with the previous results which had placed this boundary at a depth of 34 m in the loess (L6) level. The Matuyama-Brunhes boundary was also identified in Vyazivok section. It has been determined at a depth of 56.2 m in the lower part of Shyrokinio paleosol horizon. The position of the Matuyama-Brunhes boundary in Roxolany and Vyazivok sections is controversial following by local stratigraphic schemes which can be explained by incorrect stratigraphic subdivision of Roxolany section or lock-in depth hypothesis of the paleomagnetic record. The short-reversed polarity zone within the Brunhes chron which was revealed in Roxolany and Vyazivok sections in Zavadvivka soil probably refers to Emperor/Big Lost event (560-570 ka).

The Matuyama-Brunhes boundary or any short reversed-polarity episode were not determined in the Volhynian Upland sections. Therefore, magnetostratigraphic correlation of Boyanychi and Korshiv sections with other loess-soil sequences looks like impossible.

According to the variations of magnetic properties which dependent on concentration, composition, structure, domain state and other characteristics of the magnetic minerals, the zoning into "northern" and "southern" provinces of the subaerial formation of Ukraine is proposed.

Complex paleomagnetic studies of Quaternary sections of Ukraine has fundamental significance for correction and correlation of still conflicting magnetostratigraphic charts and paleogeographic sequences.